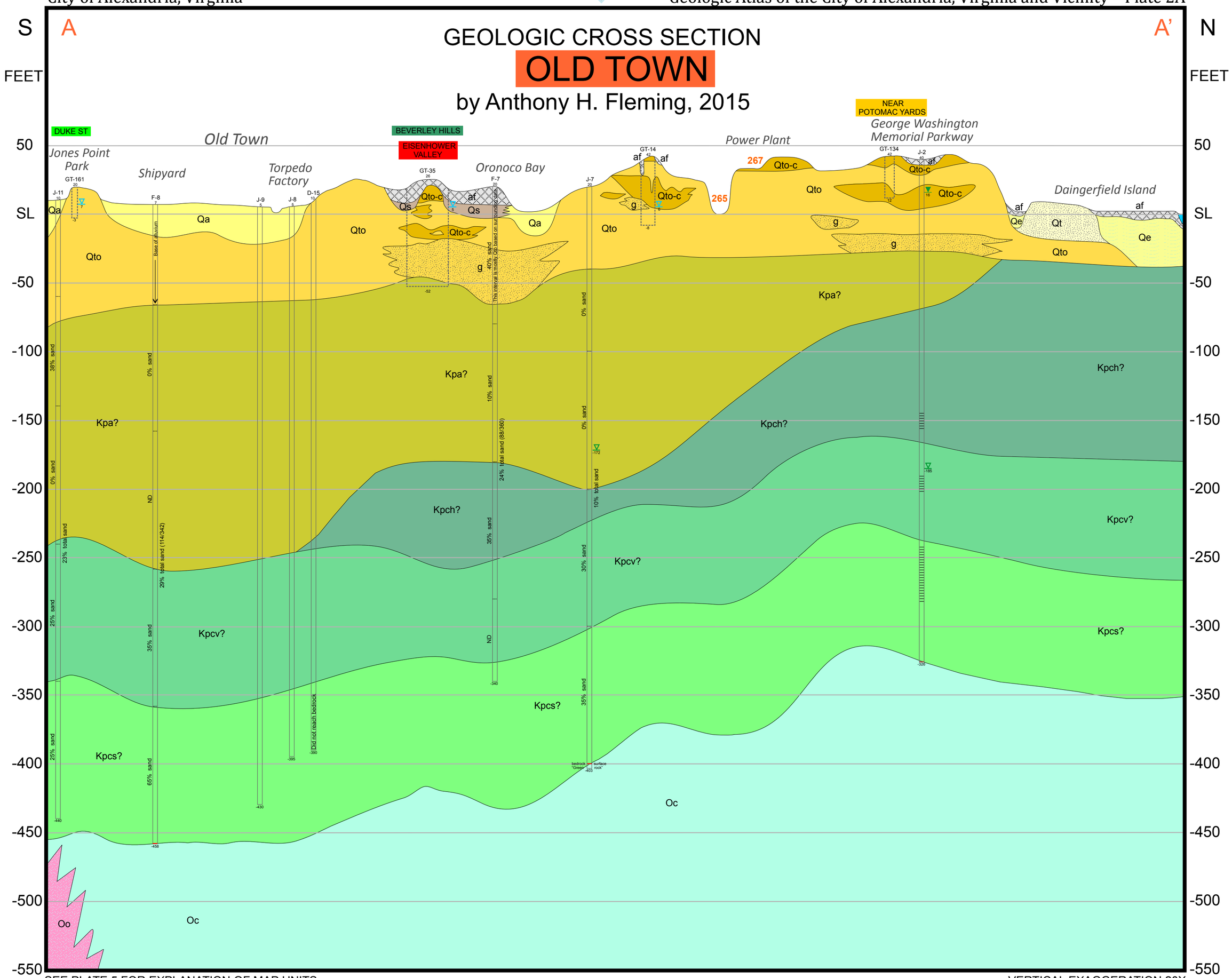
GEOLOGIC CROSS SECTION

OLD TOWN

by Anthony H. Fleming, 2015



SEE PLATE 5 FOR EXPLANATION OF MAP UNITS

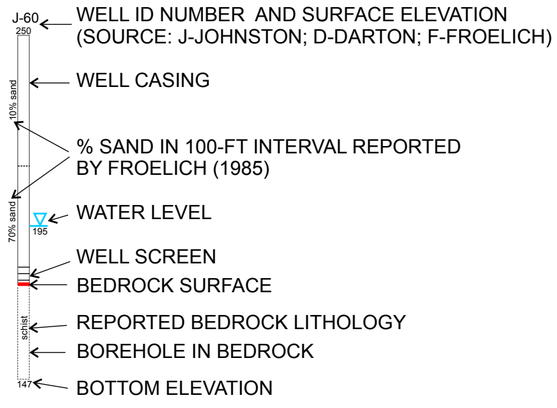
VERTICAL EXAGGERATION 20X

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

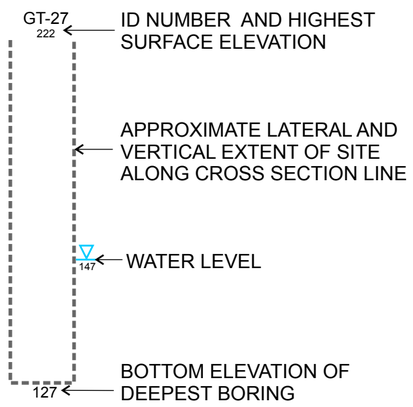
FEET

EXPLANATION OF CROSS SECTION SYMBOLS:

WATER WELL



GEOTECHNICAL BORING SITES



WATER LEVELS REPORTED IN WELLS AND GEOTECHNICAL BORINGS

119 — WATER LEVEL MEASURED IN WELL OR CASED GEOTECHNICAL BORING COMPLETED IN THE CAMERON VALLEY SAND (LOWER AQUIFER OF THE POTOMAC FORMATION)

132 — WATER LEVEL MEASURED IN 1976 FROM WELL COMPLETED IN CAMERON VALLEY SAND (JOHNSTON AND LARSON, 1977)

210 — WATER LEVEL MEASURED IN WELL OR GEOTECHNICAL BORING COMPLETED IN OTHER AQUIFERS. MAY REPRESENT A COMPOSITE OR AVERAGE WATER LEVEL AT GEOTECHNICAL SITES WITH MANY BORINGS

OTHER SYMBOLS

47 — SURFACE EXPOSURE. SOME EXCAVATIONS COINCIDE WITH GEOTECHNICAL BORING SITES

g — GRAVELLY ZONES IN THE OLD TOWN TERRACE REPORTED IN GEOTECHNICAL BORINGS

ORG — ORGANIC ZONES REPORTED IN GEOTECHNICAL BORINGS FROM THE POTOMAC FORMATION, QUATERNARY ALLUVIUM, AND OTHER SEDIMENTS. INCLUDES WOOD, PEAT, LIGNITE, LEAVES, DARK ORGANIC SILT, AND OTHER ORGANIC MATERIAL

DUKE ST — INTERSECTION WITH ANOTHER CROSS SECTION. CROSS SECTIONS ARE DISTINGUISHED BY NAME AND COLOR-CODED SECTION LINES AND TITLES

GEOLOGIC CROSS SECTION 2A – OLD TOWN

Cross section 2A parallels the Old Town waterfront from Jones Point Park on the south to Daingerfield Island on the north. The section line bends to take in the locations of several geotechnical boring sites and historical water wells, which are the primary sources of geologic data in this highly urbanized historical area. These features, and other sites of cultural, historical, and environmental interest are indicated by labels and symbols along the cross section. The specific location of the cross section is indicated on Plate 1 by an orange section line.

The cross sections are intended to be used together with the other maps, particularly Plate 5, to illustrate the third dimension of the map units. Contacts between map units are approximately located; the abundance of control points (surface exposures, wells, geotechnical sites) along the cross section provides a general indication of the reliability of contact locations. Map units are depicted using the same colors, patterns, and labels as on Plate 5, and the explanation of map units on Plate 5 serves as the legend. The section also depicts some bedrock units and a few gravelly zones in the Old Town terrace that are present only in the subsurface, and thus do not appear on Plate 5.

The dominant physiographic feature is the Old Town terrace, whose level, sandy surface and proximity to the river attracted the earliest European settlements in the Potomac Valley. This part of the City has been subject to intense human habitation and attendant modification of the landscape and soil surface for more than 250 years, resulting in a widespread blanket of artificial fill, often of multiple generations. The section shows only those bodies of fill that can be documented via geotechnical borings and historical records, such as the massive emplacements in Oronoco Bay and Daingerfield Island-Four Mile Run estuary. Many more undoubtedly exist along this cross section.

The Old Town section illustrates the architecture of the Old Town terrace as deduced from the subsurface data and geomorphology. The large gravel-filled channel at the base of the terrace near Oronoco Bay (reported in GT-35 and other nearby sites) is an intriguing feature and is probably not unique: other buried channels are likely present but not picked up by the current data distribution. The paucity of deep subsurface data makes the continuity of Potomac Formation members beneath the terrace conjectural: a basal sandy unit (Kpcs) is probably present, however, based on several deep wells described by Froelich (1985) and Johnston (1961) as terminating in thick sand sections.